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WO 01/05210 A3

(51) International Patent Classification⁷: A61M 25/00 (74) Agent: NATAUPSKY, Steven, J.; Knobbe, Martens, Olson & Bear, LLP, 620 Newport Center Drive, 16th floor, Newport Beach, CA 92660 (US).

(21) International Application Number: PCT/US00/19746 (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(22) International Filing Date: 19 July 2000 (19.07.2000) (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(25) Filing Language: English (26) Publication Language: English

(30) Priority Data: 09/363,228 19 July 1999 (19.07.1999) US (71) Applicant (for all designated States except US): I-FLOW CORPORATION [US/US]; 2020 Windrow Drive, Lake Forest, CA 92630 (US).

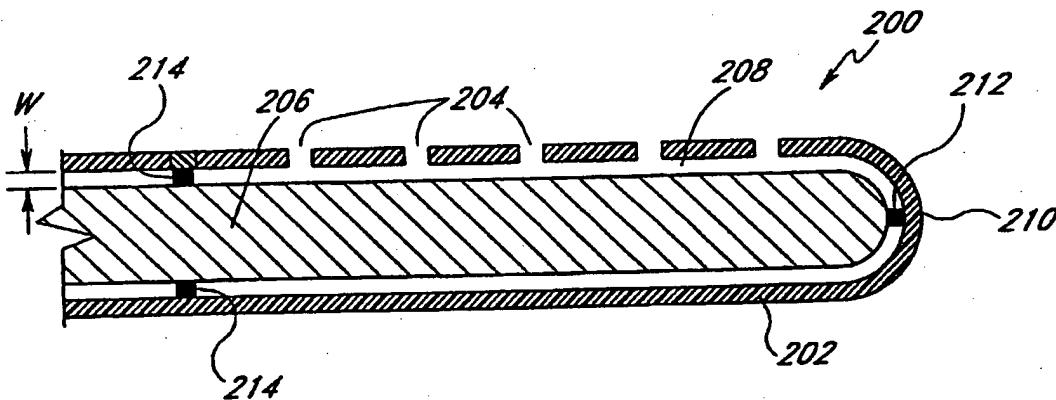
(72) Inventors; and (75) Inventors/Applicants (for US only): DENIEGA, Jose, Castillo [US/US]; 20961 Eagles Glenn, Lake Forest, CA 92630 (US). MASSENGALE, Roger [US/US]; 28 Harveston, Mission Viejo, CA 92692 (US). RAKE, Kenneth, W. [US/US]; 29625 Vista Ladera, Laguna Niguel, CA 92677 (US).

Published:

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[Continued on next page]

(54) Title: CATHETER FOR UNIFORM DELIVERY OF MEDICATION



WO 01/05210 A3 (57) Abstract: The present invention provides a catheter for the delivery of fluid medication across an anatomical region. In accordance with one embodiment, the catheter comprises an elongated tube with a plurality of exit holes along an infusion section of the catheter, and an elongated flexible porous member residing within the tube and forming an annular space between the tube and the member. In accordance with other embodiments, the catheter includes a tube having a plurality of exit holes in a side wall of the tube. The exit holes may combine to form a flow-restricting orifice of the catheter. Advantageously, fluid within the catheter flows through all of the exit holes, resulting in uniform distribution of fluid within an anatomical region. In one particular embodiment, the catheter comprises a tube having elongated exit slots therein. In accordance with other embodiments, the catheter includes an elongated tubular member made of a porous membrane. The porous membrane is configured so that a fluid introduced into an open end of the tubular member will flow through side walls of the tubular member at a substantially uniform rate along a length of the tubular member. In accordance with other embodiments, the catheter includes an elongated "weeping" tubular coil spring attached to an end of, or enclosed within, a tube. Fluid within the spring and greater than or equal to a threshold pressure advantageously flows radially outward between the spring coils. Advantageously, the fluid is dispensed substantially uniformly throughout a length of the spring.



(88) Date of publication of the international search report:
19 July 2001

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/19746

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61M25/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 92 00113 A (CARDIOVASCULAR THERAPEUTIC TEC.) 9 January 1992 (1992-01-09) abstract; figures 1,2,6,7	1,2,13
A	WO 96 33761 A (MEDTRONIC, INC.) 31 October 1996 (1996-10-31) abstract; claims 1,6-8; figures 3,5	3-10, 14-28, 30-45, 47-53
A	----- ----- ----- -----	1-10, 13-16, 18-28, 30-45, 47-53
		-/-



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

30 January 2001

Date of mailing of the international search report

08.02.2001

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 00/19746

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 92 11895 A (BOSTON SCIENT. CORP.) 23 July 1992 (1992-07-23) abstract; figures 1,1A-C ---	1-10, 13-16, 18-28, 30-45, 47-53
X	EP 0 804 936 A (COOK INC.) 5 November 1997 (1997-11-05) abstract page 3, line 55 -page 4, line 9; claims 1-4; figures 1,2 ---	11,12, 54-56, 58,59
X	US 5 066 278 A (HIRSCHBERG ET AL.) 19 November 1991 (1991-11-19) abstract column 5, line 35 - line 44; figures 1,3 ---	11,12, 54-56, 58,59
X	WO 97 49447 A (THEROX INC.) 31 December 1997 (1997-12-31) abstract page 18, line 34 -page 19, line 12 page 20, line 29 - line 35; figures 9,10,23,24 ---	60-62, 64-68, 70-72
X	US 5 356 388 A (SEPETKA ET AL.) 18 October 1994 (1994-10-18) abstract column 3, line 50 - line 61 column 4, line 5 - line 15 column 5, line 24 - line 32; figures 1-7 ---	60-62, 64-68, 70-72
A	US 5 846 216 A (BOYD ET AL.) 8 December 1998 (1998-12-08) ---	
A	US 5 269 755 A (BODICKY) 14 December 1993 (1993-12-14) ---	
A	US 3 595 241 A (SHERIDAN) 27 July 1971 (1971-07-27) ---	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 00/19746

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: 17, 29, 46, 57, 63, 69
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy
2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-10, 13-16, 18-28, 30-45, 47-53

Catheter for uniformly delivering a drug through a porous distribution section and method of manufacturing the catheter

2. Claims: 11,12, 54-56, 58,59

Catheter for uniformly delivering a drug through exit slots or holes of varying size and method of manufacturing the catheter

3. Claims: 60-62, 64-68, 70-72

Catheter for uniformly delivering a drug through gaps of a tubular coil spring and method of manufacturing the catheter

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/19746

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO 9200113	A 09-01-1992	EP 0536296	A	14-04-1993
		JP 6503972	T	12-05-1994
WO 9633761	A 31-10-1996	AU 5545596	A	18-11-1996
		US 6093180	A	25-07-2000
WO 9211895	A 23-07-1992	CA 2098984	A	29-06-1992
		DE 69131486	D	02-09-1999
		DE 69131486	T	17-02-2000
		DK 565604	T	06-03-2000
		EP 0565604	A	20-10-1993
		EP 0920843	A	09-06-1999
		ES 2137179	T	16-12-1999
		JP 6503984	T	12-05-1994
		WO 9211896	A	23-07-1992
		US 5674192	A	07-10-1997
		US 5954706	A	21-09-1999
		US 5843089	A	01-12-1998
		US 5304121	A	19-04-1994
EP 0804936	A 05-11-1997	US 6117125	A	12-09-2000
		JP 10043302	A	17-02-1998
US 5066278	A 19-11-1991	EP 0412191	A	13-02-1991
		DE 58903472	D	18-03-1993
WO 9749447	A 31-12-1997	US 5957899	A	28-09-1999
		AU 714589	B	06-01-2000
		AU 3500297	A	14-01-1998
		CA 2258966	A	31-12-1997
		EP 0917479	A	26-05-1999
		US 6123698	A	26-09-2000
US 5356388	A 18-10-1994	AU 668989	B	23-05-1996
		AU 4859293	A	12-04-1994
		CA 2143941	A	31-03-1994
		EP 0744976	A	04-12-1996
		JP 2723673	B	09-03-1998
		JP 7509389	T	19-10-1995
		WO 9406500	A	31-03-1994
US 5846216	A 08-12-1998	AU 5533196	A	23-10-1996
		GB 2314777	A, B	14-01-1998
		WO 9631250	A	10-10-1996
		US 5830186	A	03-11-1998
US 5269755	A 14-12-1993	NONE		
US 3595241	A 27-07-1971	DE 2007738	A	15-10-1970
		GB 1302066	A	04-01-1973

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09/363,228 **19 July 1999 (19.07.1999) US**

(71) Applicant (*for all designated States except US*): **I-FLOW CORPORATION [US/US]; 20202 Windrow Drive, Lake Forest, CA 92630 (US).**

(72) Inventors; and

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(74) Agent: **NATAUPSKY, Steven, J.; Knobbe, Martens, Olson & Bear, LLP, 620 Newport Center Drive, 16th floor, Newport Beach, CA 92660 (US).**

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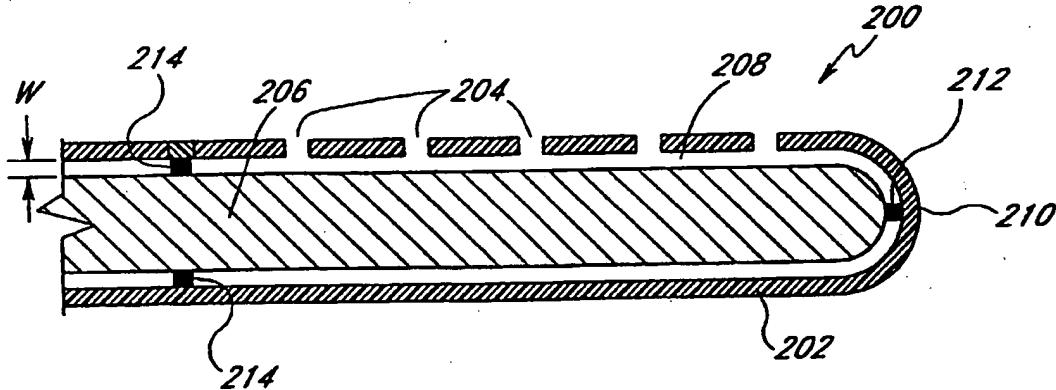
(84) Designated States (*regional*): **ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).**

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— *with international search report*

[Continued on next page]

(54) Title: **CATHETER FOR UNIFORM DELIVERY OF MEDICATION**



WO 01/05210 A3

(57) Abstract: The present invention provides a catheter for the delivery of fluid medication across an anatomical region. In accordance with one embodiment, the catheter comprises an elongated tube with a plurality of exit holes along an infusion section of the catheter, and an elongated flexible porous member residing within the tube and forming an annular space between the tube and the member. In accordance with other embodiments, the catheter includes a tube having a plurality of exit holes in a side wall of the tube. The exit holes may combine to form a flow-restricting orifice of the catheter. Advantageously, fluid within the catheter flows through all of the exit holes, resulting in uniform distribution of fluid within an anatomical region. In one particular embodiment, the catheter comprises a tube having elongated exit slots therein. In accordance with other embodiments, the catheter includes an elongated tubular member made of a porous membrane. The porous membrane is configured so that a fluid introduced into an open end of the tubular member will flow through side walls of the tubular member at a substantially uniform rate along a length of the tubular member. In accordance with other embodiments, the catheter includes an elongated "weeping" tubular coil spring attached to an end of, or enclosed within, a tube. Fluid within the spring and greater than or equal to a threshold pressure advantageously flows radially outward between the spring coils. Advantageously, the fluid is dispensed substantially uniformly throughout a length of the spring.



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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/19746

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61M25/00

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

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Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

Z document member of the same patent family

Date of the actual completion of the International search

30 January 2001

Date of mailing of the international search report

08.02.2001

Name and mailing address of the ISA

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Fax: (+31-70) 340-3016

Authorized officer

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 00/19746

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2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
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Remark on Protest

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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Catheter for uniformly delivering a drug through a porous distribution section and method of manufacturing the catheter

2. Claims: 11,12, 54-56, 58,59

Catheter for uniformly delivering a drug through exit slots or holes of varying size and method of manufacturing the catheter

3. Claims: 60-62, 64-68, 70-72

Catheter for uniformly delivering a drug through gaps of a tubular coil spring and method of manufacturing the catheter

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/19746

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
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WO 9211895	A 23-07-1992	CA 2098984 A		29-06-1992
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		DE 69131486 T		17-02-2000
		DK 565604 T		06-03-2000
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		US 5843089 A		01-12-1998
		US 5304121 A		19-04-1994
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US 5356388	A 18-10-1994	AU 668989 B		23-05-1996
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		CA 2143941 A		31-03-1994
		EP 0744976 A		04-12-1996
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		JP 7509389 T		19-10-1995
		WO 9406500 A		31-03-1994
US 5846216	A 08-12-1998	AU 5533196 A		23-10-1996
		GB 2314777 A, B		14-01-1998
		WO 9631250 A		10-10-1996
		US 5830186 A		03-11-1998
US 5269755	A 14-12-1993	NONE		
US 3595241	A 27-07-1971	DE 2007738 A		15-10-1970
		GB 1302066 A		04-01-1973